

ENVIRONMENTAL QUALITY

CHAPTER 24

RECLAMATION

Sub-Chapter 6

Strip and Underground Mine Reclamation Act:  
Transportation Facilities, Use of Explosives, and Hydrology

- Rule 17.24.601 General Requirements For Road and Railroad Loop Construction
  - 17.24.602 Location of Roads and Railroad Loops
  - 17.24.603 Road and Railroad Loop Embankments
  - 17.24.604 Soil Removal (repealed)
  - 17.24.605 Hydrologic Impact of Roads and Railroad Loops
  - 17.24.606 Surfacing of Roads (repealed)
  - 17.24.607 Maintenance of Roads and Railroad Loops
  - 17.24.608 Impacts of Other Transport Facilities
  - 17.24.609 Other Support Facilities
  - 17.24.610 Permanent Roads
  - Rules 17.24.611 through 17.24.620 reserved
  - 17.24.621 General Requirements for Use of Explosives
  - 17.24.622 Preblasting Survey
  - 17.24.623 Blasting Schedule
  - 17.24.624 Surface Blasting Requirements
  - 17.24.625 Seismograph Measurements
  - 17.24.626 Records of Blasting Operations
  - Rules 17.24.627 through 17.24.630 reserved
  - 17.24.631 General Hydrology Requirements
  - 17.24.632 Permanent Sealing of Drilled Holes
- Rule 17.24.633 Water Quality Performance Standards

- 17.24.634 Reclamation of Drainage Basins
- 17.24.635 General Requirements for Temporary and Permanent Diversion of Overland Flow, Through Flow, Shallow Ground Water Flow, Ephemeral Drainageways, and Intermittent and Perennial Streams
- 17.24.636 Special Requirements for Temporary Diversions
- 17.24.637 Special Requirements for Permanent Diversions
- 17.24.638 Sediment Control Measures
- 17.24.639 Sedimentation Ponds and Other Treatment Facilities
- 17.24.640 Discharge Structures
- 17.24.641 Acid- and Toxic-Forming Spoils
- 17.24.642 Permanent Impoundments and Flood Control Impoundments
- 17.24.643 Ground Water Protection
- 17.24.644 Protection of Ground Water Recharge
- 17.24.645 Ground Water Monitoring
- 17.24.646 Surface Water Monitoring
- 17.24.647 Transfer of Wells
- 17.24.648 Water Rights and Replacement
- 17.24.649 Discharge of Water into Underground Mines
- 17.24.650 Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments, and Treatment Facilities
- 17.24.651 Stream Channel Disturbances and Buffer Zones
- 17.24.652 Wells and Underground Openings: Safety

## Sub-Chapter 6

Strip and Underground Mine Reclamation Act:  
Transportation Facilities, Use of Explosives, and Hydrology

17.24.601 GENERAL REQUIREMENTS FOR ROAD AND RAILROAD LOOP CONSTRUCTION (1) Roads through permitted areas must not delay or prevent recontouring and revegetation on immediately adjacent spoils, unless otherwise approved by the department for documented and justified reasons related to the needs of the mining operation or improved reclamation.

(2) Access and haul roads must be graded, constructed, and maintained according to sound engineering and construction practices to incorporate appropriate limits for grade, width, surface material, surface-drainage control, culvert placement, and any other design criteria established by the department.

(3) Cut slopes must not be more than 1v:1.5h in unconsolidated materials or 1v:0.25h in rock.

(4) Temporary erosion-control measures must be utilized as necessary during construction to control sedimentation and minimize erosion until permanent control measures can be established.

(5) All cut and fill slopes must be resoiled and revegetated, or otherwise stabilized, at the first seasonal opportunity.

(6) To the extent possible using the best technology currently available (BTCA), roads and railroad loops must not cause damage to fish, wildlife, and related environmental values and must not cause additional contributions of suspended solids to streamflow or to runoff outside the permit area or otherwise degrade the quantity or quality of surface or ground water.

(7) Roads and railroad loops must not be built with or surfaced with waste coal, or acid, acid-producing, toxic, or toxic-producing materials. Surface material must be suitable for the anticipated volume, weight, and speed of traffic.

(8) Following construction or reconstruction of each haul road, access road, and railroad loop, the operator shall submit to the department a report, prepared by a qualified licensed professional engineer experienced in the design and construction of roads or railroad loops, as applicable, stating that the road or railroad loop was constructed or reconstructed in accordance with the plan approved pursuant to ARM 17.24.321.

(9) All appropriate methods, as approved by the department must be employed by the operator to prevent loss of road surface material in the form of dust.

(10) Immediately upon abandonment of any road or railroad loop, the area must be reclaimed in accordance with the approved plan. If necessary, embankment and fill materials must be hauled away and disposed of properly. All bridges and culverts must be removed and natural drainage patterns restored. Adequate measures must be taken to prevent erosion.

(11) Upon completion of mining and reclamation activities, each road and railroad loop must be reclaimed unless retention of the road or railroad loop is part of the approved postmining land use pursuant to ARM 17.24.762 and the landowner requests in writing and the department concurs that the road, railroad loop, or specified portion(s) thereof be retained. In such event, necessary maintenance must be assured by the operator or landowner and drainage of the road or railroad loop must be controlled according to the provisions of ARM 17.24.601 through 17.24.610 while the road or railroad loop is under permit. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.602 LOCATION OF ROADS AND RAILROAD LOOPS (1) The location of a proposed road or railroad loop must be identified on the site by visible markings prior to the commencement of construction. Construction must not proceed along dry coulees, or intermittent or perennial drainageways unless the operator demonstrates that no off-site sedimentation will result and all the requirements of this subchapter are met, or in wet, boggy, steep, or unstable areas.

(2) All roads, insofar as possible, must be located on ridges or on the available flatter and more stable slopes to minimize erosion. Stream fords are prohibited, except for temporary routes across dry, ephemeral streams that are specifically approved by the department. The department may approve crossings that will not adversely affect sedimentation or fish, wildlife, or related values, and that will not be used for hauling. Other stream crossings must be made using bridges, culverts or other structures designed and constructed to meet the requirements of this section. Roads must not be located in stream channels or be constructed or maintained in a manner that increases erosion or causes significant sedimentation or flooding. However, nothing in this section prohibits relocation of stream channels in accordance with ARM 17.24.631 through 17.24.637. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.603 ROAD AND RAILROAD LOOP EMBANKMENTS (1) After soil is salvaged from embankment areas pursuant to ARM 17.24.701 through 17.24.703, all organic material must be removed from the embankment foundation to increase stability.

(2) All material used in embankments must be suitable for the intended use. The material must be free of organic matter, coaly or carbonaceous material, wet or frozen materials, and any other material considered unsuitable by the department for use in embankment construction.

(3) Embankment layers must be compacted as necessary to ensure that the embankment is adequate to support the anticipated volume, weight, and speed of vehicles to be used.

(4) Road and railroad loop embankments must have a minimum static safety factor of 1.3 under any condition of loading likely to occur, or such higher factor as the department determines to be reasonably necessary for safety or protection of property.

(5) Any embankment that impounds water as part of the sediment control plan must be designed and constructed in accordance with ARM 17.24.639. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.604 SOIL REMOVAL IS REPEALED (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; REP, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.605 HYDROLOGIC IMPACT OF ROADS AND RAILROAD LOOPS

(1) Access and haul roads and railroad loops and associated bridges, culverts, ditches, and road rights-of-way must be constructed, maintained, and reclaimed to prevent additional contributions of suspended solids to streamflow, diversions, or to runoff outside the permit area to the extent possible, using the BTCA.

(2) Drainage ditches must be placed at the toe of all cut slopes formed by the construction of roads. Drainage structures must be constructed to cross a stream channel and must not affect the flow or sediment load of the stream unless otherwise approved by the department in writing for a site-specific situation.

(3) Railroad loops and all roads except ramp roads must be adequately drained using structures such as, but not limited to, ditches, water barriers, cross-drains, ditch-relief drainages, culverts, and bridges.

(4) For railroad loops and for roads that are to be maintained for more than six months and for all roads used to haul coal or spoil (excluding ramp roads) or to be retained for the postmining land use, water-control structures must be designed with a discharge capacity capable of safely passing the peak runoff from a 10-year, 24-hour precipitation event or greater event as specified by the department.

(5) Bridges with a span of 30 feet or less must be designed to safely pass a 25-year, 24-hour precipitation event. All other bridges must be designed to safely pass the 100-year, 24-hour precipitation event or greater event as specified by the department.

(6) Drainage pipes and culverts must be constructed to avoid plugging or collapse and erosion at inlets and outlets. Culverts must be designed, constructed, and maintained to sustain the vertical soil pressure, the passive resistance of the foundation, and the weight of vehicles to be used.

(7) Natural channel drainageways must not be altered or relocated for road or railroad loop construction or reconstruction without the prior approval of the department in accordance with ARM 17.24.635 through 17.24.637. The department may approve alterations and relocations only if:

(a) the natural channel drainage is not blocked;  
(b) no significant damage occurs to the hydrologic balance; and

(c) there is not adverse impact on adjoining landowners.

(8) Drainage structures are required for stream channel crossings. Drainage structures must not affect the normal flow or gradient of the stream or adversely affect fish migration and aquatic habitat or related environmental values. Riprap may be used for roads where an ephemeral channel is too shallow for placement of a culvert.

(9) Vegetation must not be cleared for more than the width necessary for road, railroad loop, and associated ditch construction, to serve traffic needs, and for utilities. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.606 SURFACING OF ROADS IS REPEALED (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; REP, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.607 MAINTENANCE OF ROADS AND RAILROAD LOOPS

(1) All roads must be routinely maintained by means such as, but not limited to, wetting, scraping or surfacing, and replacement of paving materials, such that the required design standards of the roads are met throughout the life of the operation.

(2) Ditches, culverts, drains, trash racks, debris basins and other structures serving to drain roads and railroad loops must not be restricted or blocked in any manner that impedes drainage or adversely affects the intended purpose of the structure unless the department determines that:

(a) the operator cannot maintain structures indicated in (2) above due to wet field conditions;

(b) obstructions to these structures will not result in environmental damage or imminent harm to the health and safety of the public; and

(c) runoff and sediment are contained in accordance with the approved drainage control plan.

(3) Roads and railroad loops severely damaged by events such as floods, earthquakes, or equipment damage must be reconstructed or reclaimed as soon as practicable after the damage has occurred. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99.)



17.24.608 IMPACTS OF OTHER TRANSPORT FACILITIES Other transportation facilities within the area of land affected, including railroad spurs, sidings, surface conveyor systems, chutes, aerial tramways, pipelines, powerlines, and other transport facilities must be designed, constructed, reconstructed, maintained, and reclaimed to:

(1) control and minimize diminution or degradation of water quality and quantity;

(2) control and minimize air pollution;

(3) prevent damage to public and private property; and

(4) prevent, to the extent possible using the BTCA:

(a) damage to fish, wildlife, and related environmental values; and

(b) additional contributions of suspended solids to streamflow or runoff outside the permit area. Any such contributions must not be in excess of limitations of state or federal law. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.609 OTHER SUPPORT FACILITIES (1) Support facilities, including temporary and mobile facilities, required for, or used incidentally to, the operation of the mine including, but not limited to, mine buildings, rock crushers, coal loading facilities, coal storage facilities, equipment storage facilities, fan buildings, hoist buildings, preparation plants, septic systems, sewage lagoons, fuel storage and distribution facilities, sheds, shops, other buildings, and environmental monitoring sites must be designed, constructed or reconstructed, and located to prevent or control erosion and siltation, water pollution, and damage to public or private property. Support facilities must be designed, constructed or reconstructed, maintained, and used in a manner which prevents, to the extent possible using the BTCA:

(a) damage to fish, wildlife, and related environmental values; and

(b) additional contributions of suspended solids to streamflow or runoff outside the permit area. Any such contributions must not be in excess of limitations of state or federal law.

(2) All strip or underground mining operations must be conducted in a manner that minimizes damage, destruction, and disruption of services provided by oil, gas and water wells; oil, gas, and coal-slurry pipelines; railroads; electric and telephone lines; and water and sewage lines which pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the department.

(3) No support facility may be constructed in a manner or located other than as indicated in the approved permit application or site approved by the department. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.610 PERMANENT ROADS (1) Permanent roads approved as a part of the postmining land use must be designed and built to minimize maintenance needs and to provide maximum control of erosion through ditching, seeding, and other appropriate measures approved by the department. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

Rules 17.24.611 through 17.24.620 reserved

17.24.621 GENERAL REQUIREMENTS FOR USE OF EXPLOSIVES

(1) Each operator shall comply with all applicable state and federal laws in the use of explosives.

(2) Blasts that use more than 5 pounds of explosive or blasting agent must be conducted according to the schedule required by ARM 17.24.623.

(3) All blasting operations must be conducted by experienced, trained, and competent persons who understand the hazards involved. Each person responsible for blasting operations must possess a valid certification. See ARM 17.24.1260 through 17.24.1263. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.622 PREBLASTING SURVEY

(1)(a) At least 30 days before initiation of blasting, the operator shall advise, in writing, all residents or owners of dwellings or other structures within 1/2 mile of the permit area how to request a preblasting survey.

(b) Any survey requested more than 10 days before the planned initiation of blasting must be completed by the operator before the initiation of blasting.

(c) On the request to the department by a resident or owner of a dwelling or structure that is located within 1/2 mile of any part of the permit area, the operator must promptly conduct a preblasting survey of the dwelling or structure and promptly submit a report of the survey to the department and to the person requesting the survey. If a structure is renovated or added to subsequent to a preblasting survey, then upon request to the department a survey of such additions and renovations must be performed in accordance with this section.

(2) The survey must determine the condition of the dwelling or structure and document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Assessments of structures such as pipes, cables, transmission lines, and wells and other water systems must be limited to surface condition and readily available data. Special attention must be given to the preblasting condition of wells and other water systems used for human, animal, or agricultural purposes and to the quantity and quality of the water.

(3) A written report of the survey must be prepared and signed by the person who conducted the survey. The report may include recommendations of any special conditions or proposed adjustments to the blasting procedure that should be incorporated into the blasting plan to prevent damage. Copies of the report must be provided to the person requesting the survey and to the department. If the person requesting the

survey disagrees with the results of the survey, he or she may notify, in writing, both the permittee and the department of the specific areas of disagreement. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.623 BLASTING SCHEDULE (1) The operator shall publish a blasting schedule at least 10 days, but not more than 20 days, before beginning a blasting program in which blasts that use more than five pounds of explosive or blasting agent are detonated. The blasting schedule must be published once in a newspaper of general circulation in the locality of the blasting site.

(2) Copies of the schedule must be distributed by mail to local governments and public utilities and by mail or delivered to each residence within 1/2 mile of the permit area described in the schedule. For the purposes of this section, the permit area does not include haul or access roads, coal preparation and loading facilities, and transportation facilities between coal excavation areas and coal preparation or loading facilities, if blasting is not conducted in these areas. Copies sent to residences must be accompanied by information advising the owner or resident how to request a preblasting survey.

(3) The operator shall republish and redistribute the schedule by mail at least every 12 months.

(4) A blasting schedule must not be so general as to cover the entire permit area or all working hours, but it must identify as accurately as possible the location of the blasting sites and the time periods when blasting will occur.

(5) The blasting schedule must contain at a minimum:

- (a) name, address and telephone number of the operator;
- (b) identification of the township, range and section for specific areas in which blasting will take place;
- (c) days and time periods when explosives are to be detonated;

(d) methods to be used to control access to the blasting area;

(e) types of audible warnings and all-clear signals to be used before and after blasting; and

(f) a description of unavoidable hazardous situations referred to in ARM 17.24.310(1)(f) that have been approved by the department for blasting at times other than those described in the schedule.

(6) Before blasting in areas or at times not in a previous schedule, the operator shall prepare a revised blasting schedule according to the procedures of (1). Whenever a schedule has previously been provided to the owner or residents under (1) with information on requesting a preblasting survey, the notice

of change need not include information regarding preblast surveys.

(7) If there is a substantial pattern of non-adherence to the published blasting schedule as evidenced by the absence of blasting during scheduled periods, the department may require the operator to prepare a revised blasting schedule according to the procedures in (6). (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 1999 MAR p. 2168, Eff. 12/3/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.624 SURFACE BLASTING REQUIREMENTS (1) The department may limit the area covered, timing, and sequence of blasting, if such limitations are necessary and reasonable in order to protect the public health and safety or welfare.

(2) All blasting must be conducted between sunrise and sunset except that:

(a) The department may specify more restrictive time periods, based on public requests or other relevant information, according to the need to adequately protect the public from adverse noise or seismic disturbances.

(b) Blasting may, however, be conducted between sunset and sunrise if:

(i) a blast that has been prepared during the afternoon must be delayed due to the occurrence of an unavoidable hazardous condition and cannot be delayed until the next day because a potential safety hazard could result that cannot be adequately mitigated;

(ii) in addition to the required warning signals, oral notices are provided to persons within 1/2 mile of the blasting site; and

(iii) a complete written report of blasting at night is filed by the operator with the department not later than three days after the night blasting. The report must include a description in detail of the reasons for the delay in blasting including why the blast could not be held over to the next day, when the blast was actually conducted, the warning notices given, and a copy of the blast record required by ARM 17.24.626.

(3) Blasting must be conducted at times announced in the blasting schedule, except in those unavoidable hazardous situations, previously approved by the department in the permit application, whenever operator or public safety require unscheduled detonation. Any deviation from the times announced must be reported to the department not later than three days after the unavoidable blast. A complete description of the unavoidable hazardous situation must accompany the report.

(4) Warning and all-clear signals of different character that are audible within a range of 1/2 mile from the point of the blast must be given. Each person within the permit area and each person who resides or regularly works within 1/2 mile of the permit area must be notified of the meaning of the signals through appropriate instructions. These instructions must be periodically delivered or otherwise communicated in a manner that can be reasonably expected to inform such persons of the meaning of the signals. The operator shall maintain signs in accordance with ARM 17.24.524.

(5) Access to an area possibly subject to flyrock from blasting must be regulated to protect the public and livestock. Blasting must not eject flyrock onto property outside the permit area. Access to the area must be controlled to prevent the presence of livestock or unauthorized personnel during blasting and until an authorized representative of the operator has reasonably determined:

(a) that no unusual circumstances, such as imminent slides or undetonated charges, exist; and

(b) that access to and travel in or through the area can be safely resumed.

(6)(a) Airblast must be controlled so that it does not exceed the values specified below at any dwelling, or public, commercial, community or institutional building, unless the structure is owned by the operator and is not leased to any other person. If a building owned by the operator is leased to another person, the lessee may sign a waiver relieving the operator from meeting the airblast limitations of this section.

---

<u>Lower Frequency limit of measuring system, Hertz (Hz) (+3dB)</u>	<u>Maximum level in decibels (dB)</u>
0.1 Hz or lower - flat response . . . . .	134 peak.
2 Hz or lower - flat response . . . . .	133 peak.
6 Hz or lower - flat response . . . . .	129 peak.
C-weighted, slow response . . . . .	105 peak dBC.

---

If necessary to prevent damage, the department shall specify lower maximum allowable airblast levels than those above.

---

(b) In all cases, except the C-weighted, slow-response system, the measuring systems used must have a flat frequency response of at least 200 Hz at the upper end. The C-weighted system must be measured with a Type 1 sound level meter that meets the standard American national standards institute (ANSI) S1.4-1971 specifications. The ANSI S1.4-1971 is hereby incorporated by reference as it exists on April 1, 1980. Copies

of this publication are on file with the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.

(c) The operator may satisfy the provisions of this section by meeting any of the four specifications in the chart in (a).

(d) The operator shall conduct periodic monitoring to ensure compliance with the airblast standards. The department may require an airblast measurement of any or all blasts, and may specify the location of such measurements, except as noted in (a).

(7) Except where lesser distances are approved by the department, based upon a preblasting survey, seismic investigation, or other appropriate investigation, blasting must not be conducted within:

(a) 1,000 feet of any dwelling, or public, commercial, community or institutional building;

(b) 500 feet of facilities including, but not limited to, disposal wells, petroleum or gas storage facilities, municipal water storage facilities, fluid transmission pipelines, gas or oil collection lines, or water and sewage lines or any active or abandoned underground mine.

(8) If otherwise approved, a blast design, including measures to protect the above facilities, must be submitted which contains the information required in ARM 17.24.310 and signed by a certified blaster.

(9) Flyrock, including blasted material traveling along the ground, must not be cast from the blasting vicinity more than half the distance to the nearest dwelling or other occupied structure and in no case beyond the line of property owned or leased by the permittee, or beyond the area of regulated access required under (5).

(10) Blasting must be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, and change in the course, channel, or availability of ground or surface waters outside the permit area.

(11) In all blasting operations, except as otherwise authorized in this section, the maximum peak particle velocity must not exceed the following limits at the location of any dwelling, or public, commercial, community or institutional building:

---

Distance (D) from the blasting site, <u>in feet</u>	Maximum allowable peak particle velocity (V max) for ground vibration, in <u>inches/second</u>	Scaled-distance factor to be applied without seismic monitoring (Ds)
0 to 300	1.25	50
301 to 5,000	1.00	55
5,001 and beyond	0.75	65

---

(a) Peak particle velocities must be recorded in three mutually perpendicular directions. The maximum peak particle velocity is the largest of any of the three measurements.

(b) The department shall reduce the maximum peak velocity allowed, if it determines that a lower standard is required because of density of population or land use, age or type of structure, geology or hydrology of the area, frequency of blasts, or other factors.

(12) If blasting is conducted in such a manner as to avoid adverse impacts on any underground mine and changes in the course, channel, or availability of ground or surface water outside the permit area, then the maximum peak particle velocity limitation of (11) does not apply at the following locations:

(a) at structures owned by the operator and not leased to another party; and

(b) at structures owned by the operator and leased to another party, if a written waiver by the lessee is submitted to the department prior to blasting.

(13) An equation for determining the maximum weight of explosives that can be detonated within any eight-millisecond period is in (14). If the blasting is conducted in accordance with this equation, the peak particle velocity is deemed to be within the limits specified in (11).

(14) The maximum weight of explosives to be detonated within any eight-millisecond period may be determined by the formula  $W = (D/D_s)^2$  where  $W$  = the maximum weight of explosives, in pounds, that can be detonated in any eight-millisecond period;  $D$  = the distance, in feet, from the blast hole nearest to a dwelling, or public, commercial, community or institutional building, except as noted in (12); and  $D_s$  = the scaled distance factor, using the values identified in (11). (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1990 MAR p. 936, Eff. 5/18/90; TRANS, from DSL, 1996 MAR p. 2852; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)



17.24.625 SEISMOGRAPH MEASUREMENTS (1) Whenever a seismograph is used to monitor the velocity of ground motion and the peak particle velocity limits of ARM 17.24.624(11) are not exceeded, the equation in ARM 17.24.624(14) need not be used. If that equation is not used by the operator, a seismograph record must be obtained for each shot.

(2) The use of a modified equation to determine maximum weight of explosives per delay for blasting operations at a particular site may be approved by the department, on receipt of a petition accompanied by reports including seismograph records of test blasting on the site. The department may not approve the use of a modified equation if the peak particle velocity for the limits specified in ARM 17.24.624(11) are exceeded, meeting a 95% statistical confidence level.

(3) The operator may use the ground vibration limits described in the blasting-level chart referenced in 30 CFR 816.67(d)(4) as an alternative to (1) and (2), upon approval by the department.

(4) The department may require a seismograph record of any or all blasts and may specify the location at which the measurements are to be taken. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.626 RECORDS OF BLASTING OPERATIONS (1) A record of each blast, including seismograph records, must be retained for at least three years and must be available for inspection by the department and the public on request. Blasting records must be complete and accurate at the time of inspection. The record must contain the following data:

- (a) name of the operator conducting the blast;
- (b) location, date, and time of the blast;
- (c) name, signature, and license number of blaster-in-charge;
- (d) direction and distance, in feet, from the blast hole nearest to a dwelling, or commercial, public, community, or institutional building either:
  - (i) not located in the permit area; or
  - (ii) not owned nor leased by the person who conducts the mining activities.
- (e) weather conditions, including temperature, wind direction, and approximate velocity;

- (f) type of material blasted;
  - (g) number of holes, burden, and spacing;
  - (h) diameter and depth of holes;
  - (i) types of explosives used;
  - (j) total weight of explosives used and total weight of explosives used in each hole;
  - (k) maximum weight of explosives detonated within any eight-millisecond period;
  - (l) maximum number of holes detonated within any eight-millisecond period;
  - (m) initiation system;
  - (n) type and length of stemming;
  - (o) mats or other protections used;
  - (p) type of delay detonator and delay periods used;
  - (q) sketch of the delay pattern;
  - (r) number of persons in the blasting crew;
  - (s) seismographic and airblast records, where required, including:
    - (i) the calibration signal of the gain setting or certification of annual calibration;
    - (ii) seismographic reading, including exact location of seismograph and its distance from the blast, airblast reading, dates and times of readings;
    - (iii) name of the person taking the seismograph reading; and
    - (iv) name of the person and firm analyzing the seismographic record; and
    - (t) reasons and conditions for each blast occurring outside the time frames published in the blasting schedule.
- (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

Rules 17.24.627 through 17.24.630 reserved

17.24.631 GENERAL HYDROLOGY REQUIREMENTS (1) The permittee shall plan and conduct mining and reclamation operations to minimize disturbance to the prevailing hydrologic balance and to prevent material damage to the prevailing hydrologic balance outside the permit area.

(2) Changes in water quality and quantity, in the depth to ground water, and in the location of surface water drainage channels must be minimized so that the postmining land use of the disturbed land is not adversely affected and applicable federal and state statutes and regulations are not violated.

(3)(a) The permittee shall conduct operations so as to minimize water pollution and shall, where necessary, use treatment methods to control water pollution. The permittee shall emphasize mining and reclamation practices that will prevent or minimize water pollution. Diversions of drainages must be used in preference to the use of water treatment facilities.

(b) Practices to control and minimize pollution include, but are not limited to, stabilizing disturbed areas through land shaping, diverting runoff, achieving quickly germinating and growing stands of temporary vegetation, regulating channel velocity of water, lining drainage channels with rock or vegetation, mulching, selectively placing and sealing acid-forming and toxic-forming materials, and selectively placing waste materials in backfill areas.

(4) If pollution can be controlled only by treatment, the permittee shall operate and maintain the necessary water treatment facilities for as long as treatment is required. The department may specify which practices, used to minimize water pollution, may be used on a permanent basis. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852.)

17.24.632 PERMANENT SEALING OF DRILLED HOLES (1) When no longer needed for its intended use as approved by the department and if not transferred as a water well under ARM 17.24.647, each prospecting hole, other drilled hole, borehole, or well must be abandoned according to the procedures described in ARM 17.24.1005. Other exposed underground openings must also be abandoned in accordance with ARM 17.24.1005 or, with department approval, be cased, sealed, or otherwise managed to prevent acid or other toxic drainage from entering the ground or surface waters, to minimize disturbance to the prevailing hydrologic balance, and to ensure safety of people, livestock, fish and wildlife, and machinery in the permit area and adjacent areas. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.633 WATER QUALITY PERFORMANCE STANDARDS (1) All surface drainage from the disturbed area, including disturbed areas that have been graded, seeded, or planted, must be treated by the BTCA before leaving the permit area. Additional BTCA practices may be required after commencement of the operation if conditions arise that were not anticipated at the time of the permit application.

(2) Sediment control through BTCA practices must be maintained until the disturbed area has been restored, the revegetation requirements of ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.718, 17.24.721, 17.24.723 through 17.24.726, and 17.24.731 have been met, the area meets state and federal requirements for the receiving stream, and evidence is provided that demonstrates that the drainage basin has been stabilized consistent with the approved postmining land use.

(3) All sediment control must be constructed in accordance with ARM 17.24.638 and 17.24.639 in approved locations before any strip or underground mining operations in the drainage area to be affected may begin.

(4) All discharges which include water from areas disturbed by strip or underground mining operations must be in compliance with all federal and state laws and regulations and applicable effluent limitations.

(5) In accordance with 40 CFR 434, for certain constituents as defined in the operator's MPDES permit, discharge from the disturbed areas is not subject to the effluent limitations or BTCA standards of ARM 17.24.638 if:

(a) the discharge is demonstrated by the permittee to have resulted from a precipitation event equal to or larger than a 10-year, 24-hour precipitation event, or snowmelt runoff of equivalent volume; and

(b) the discharge is from BTCA practices designed, constructed, and maintained in accordance with (1) through (4) and ARM 17.24.639. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.634 RECLAMATION OF DRAINAGE BASINS (1) Reclaimed drainage basins, including valleys, channels, and floodplains must be constructed to:

(a) comply with the postmining topography map required by ARM 17.24.313(1)(d)(iv) and approved by the department;

(b) approximate original contour;

(c) an appropriate geomorphic habit or characteristic pattern consistent with 82-4-231(10)(k), MCA;

(d) allow the drainage channel to remain in dynamic equilibrium with the drainage basin system without the use of artificial structural controls unless approved by the department;

(e) provide separation of flow between adjacent drainages and safely pass the runoff from a six-hour precipitation event with a 100-year recurrence interval, or larger event as specified by the department;

(f) provide for the long-term relative stability of the landscape. The term "relative" refers to a condition comparable to an unmined landscape with similar climate, topography, vegetation and land use;

(g) provide an average channel gradient that exhibits a concave longitudinal profile;

(h) establish or restore a diversity of habitats that are consistent with the approved postmining land use, and restore, enhance where practicable, or maintain natural riparian vegetation as necessary to comply with ARM subchapter 7; and

(i) exhibit dimensions and characteristics that will blend with the undisturbed drainage system above and below the area to be reclaimed and that will accommodate the approved revegetation and postmining land use requirements.

(2) Any permanent structure placed or constructed within a perennial or intermittent stream must be certified by a qualified licensed professional engineer as meeting the performance standards and any design criteria specified by the department. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 2852; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.635 GENERAL REQUIREMENTS FOR TEMPORARY AND PERMANENT DIVERSION OF OVERLAND FLOW, THROUGH FLOW, SHALLOW GROUND WATER FLOW, EPHEMERAL DRAINAGEWAYS, AND INTERMITTENT AND PERENNIAL STREAMS (1) The department may require or approve a diversion of flow whenever:

(a) the purpose is to divert water away from disturbed areas, to minimize erosion, to reduce the volume of water requiring treatment or to prevent or remove water from contact with acid- or toxic-forming materials; and

(b) the department finds that the diversion will not adversely affect the water quantity and quality and related environmental resources of the stream. (See also ARM 17.24.633, 17.24.634, 17.24.651, and 17.24.751.)

(2) A diversion that increases the potential for landslides or allows entry of diverted water into underground mines must not be created.

(3) Diversions must not be constructed to pass large flow events into an adjacent drainage channel that would result in excessive erosion in the natural channel. Water in excess of the design event must be conveyed in a stable manner to an appropriate treatment facility to meet effluent limitations before passing off the permit area.

(4)(a) Diversions must be designed, constructed, stabilized, and maintained to prevent additional contributions of suspended solids to streamflow, to runoff outside the permit area, to prevent material damage to surface and ground water outside the permit area, and to assure the safety of the public to the extent possible, using the BTCA.

(b) Materials used to construct diversions must be approved as acceptable by the department prior to their use.

(5) The design and construction of all stream channel diversions and any related structures must be certified by a qualified licensed professional engineer as meeting the performance standards and any design criteria set by the department. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.636 SPECIAL REQUIREMENTS FOR TEMPORARY DIVERSIONS

(1) A temporary diversion must be constructed to pass safely the peak runoff from a precipitation event with a 10-year, 24-hour recurrence interval, or a larger event as specified by the department.

(2) If channel lining is required to prevent erosion, the channel lining must be designed using standard engineering practices to safely pass design velocities.

(3) Freeboard must be as specified by the department, but no less than 1.0 foot.

(4) Energy dissipators must be installed in streams where exit velocity of the diversion is greater than that of the receiving stream.

(5) Whenever streamflow is allowed to be diverted, the stream channel diversion must be designed, constructed, and removed in accordance with the following requirements:

(a) The longitudinal profile of the stream, the channel, and the floodplain must be designed and constructed to remain stable and to prevent, to the extent possible using the BTCA, additional contributions of suspended solids to streamflow or to runoff outside the permit area. These contributions must not be in excess of requirements of state or federal law. Erosion control structures, such as channel lining structures, basins, and artificial channel roughness structures, may be used in diversions only when approved by the department as being necessary to control erosion.

(b) The combination of channel, bank, and flood-plain configurations must be adequate to pass safely the peak runoff of a 10-year, 24-hour precipitation event for temporary diversions or larger events specified by the department. However, the capacity of the channel itself must be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream from the diversion.

(6) When no longer needed to achieve the purpose for which it was authorized, a temporary diversion must be removed and the affected land regraded, resoiled, and revegetated, in accordance with subchapters 5 and 7. At the time a diversion is removed, downstream water treatment facilities previously protected by the diversion must be modified or removed to prevent overtopping or failure of the facilities. This requirement does not relieve the operator from responsibility for maintenance of a water treatment facility otherwise required under this subchapter or the permit. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.637 SPECIAL REQUIREMENTS FOR PERMANENT DIVERSIONS

(1) Permanent diversion structures are defined as those approved by the department to remain after mining.

(2) All permanent diversions must meet the requirements of ARM 17.24.634 and 17.24.635. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.638 SEDIMENT CONTROL MEASURES

(1) Appropriate sediment control measures must be designed, constructed, and maintained using the BTCA to:

(a) prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area;

(b) meet the more stringent of applicable state or federal effluent limitations; and

(c) minimize erosion to the extent possible.

(2) Sediment control measures include practices carried out within or adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed area must reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include but are not limited to:

(a) disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading, and prompt revegetation in accordance with ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.721, and 17.24.723 through 17.24.726;

(b) stabilizing the backfill material to promote a reduction in the rate and volume of runoff, in accordance with the requirements of subchapter 5;

(c) retaining sediment within disturbed areas;

(d) diverting runoff away from disturbed areas;

(e) diverting runoff by using protected channels or pipes through disturbed areas to eliminate additional erosion;

(f) using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce overland flow velocity, reduce runoff volume, or trap sediment; and

(g) treating with chemicals. (History: 82-4-202, 82-4-204, MCA; IMP, 82-4-231, 82-4-232, 82-4-234, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)



17.24.639 SEDIMENTATION PONDS AND OTHER TREATMENT FACILITIES (1) Sedimentation ponds, either temporary or permanent, may be used individually or in series and must:

(a) be constructed before any disturbance of an area that will drain into the pond takes place;

(b) be located as near as possible to the disturbed area, and out of major stream courses, unless another site is approved by the department;

(c) provide an adequate sediment storage volume equal to:

(i) (A) the accumulated sediment volume from the drainage area to the pond for a minimum of three years as determined by a method approved by the department; or

(B) not less than 0.02 acre-foot for each acre of disturbed area, excluding well-established reclamation, within the upstream drainage area, unless the operator affirmatively demonstrates that the sediment volume from any site-specific area would be less. A greater sediment volume may be required if necessary to contain a higher sediment yield; and, as applicable,

(ii) the accumulated sediment volume necessary to retain sediment for one year in any discharge from an underground mine passing through the pond;

(d) be accurately surveyed immediately after construction in order to provide a baseline for future sediment volume measurements; and

(e) be constructed as approved unless modified under ARM 17.24.642(7).

(2) Sedimentation ponds must provide the required theoretical detention time adequate to meet effluent limitations described in ARM 17.24.633 and for the water inflow or runoff entering the pond from a 10-year, 24-hour precipitation event (design event), plus the average inflow from the underground mine if applicable. "Theoretical detention time" is the average time that the design flow is detained in the pond and is further defined as the time difference between the centroid of the inflow hydrograph and the centroid of the outflow hydrograph for the design event. Runoff diverted under ARM 17.24.635 through 17.24.637 away from the disturbed drainage areas and not passed through the sedimentation pond need not be considered in sedimentation pond design. In determining the runoff volume, the characteristics of the mine site, reclamation procedures, and on site sediment control practices shall be considered. Sedimentation ponds must provide a theoretical detention time of not less than 24 hours, or any higher amount required by the department.

(3) The water storage resulting from inflow must be removed by a nonclogging dewatering device or a conduit spillway approved by the department and must have a discharge rate to achieve and maintain the required theoretical detention time. The inlet to the dewatering device must not be located at a lower elevation than the maximum elevation of the sediment storage volume.

(4) Each operator shall design, construct, and maintain sedimentation ponds to prevent short-circuiting to the extent possible.

(5) There must not be outflow through the emergency spillway during the passage of the runoff resulting from the 10-year, 24-hour precipitation event or lesser events through the sedimentation pond.

(6) Sediment must be removed from sedimentation ponds when the volume of sediment accumulates to 60% of the design sediment storage volume. With the approval of the department, additional storage may be provided for sediment and water above the total design requirement. If additional storage is provided and the design runoff storage and theoretical detention time are maintained, sediment removal may be delayed until 40% of the required sediment storage remains.

(7) Sedimentation ponds having embankments must be constructed to provide:

(a) a combination of principal and emergency spillways or a single spillway only to safely discharge the runoff from a 25-year, 24-hour precipitation event, or larger event specified by the department, assuming the impoundment is at full pool for spillway design. A single spillway must be constructed of non-erodible materials and designed to carry sustained flows, or be earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected. The elevation of the crest of the emergency spillway must be a minimum of one foot above the crest of the principal spillway. Emergency spillway grades and allowable velocities must be approved by the department;

(b) containment of runoff from a 25-year, 24-hour precipitation event, or greater event as specified by the department, with no spillway required, provided that the impounding structure does not meet any of the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in USDA soil conservation service Technical Release No. 60 (210-VI-TR60, October 1985, as revised through January 1991), "Earth Dams and Reservoirs", (TR-60), and provided further that adequate provisions are made for safe dewatering of the pond within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices; or

(c) for ponds meeting any of the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in TR-60, containment of runoff from the probable maximum precipitation of a six-hour event, or greater event as specified by the department, with no spillway required, provided that adequate provisions are made for safe dewatering of the pond within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices.

(8) Foundations and abutments for sediment ponds must be stable during all phases of construction and operation and must be designed based on appropriate and adequate information on foundation conditions that is collected pursuant to ARM 17.24.315(1)(b) or (d), as appropriate.

(9) The minimum elevation at the top of the settled embankment must be one foot above the water surface in the pond with the emergency spillway flowing at design depth.

(10) Unless otherwise approved by the department as adequate to maintain stability, the minimum top width of the embankment must not be less than the quotient of  $(H+35)/5$ , where H is the height, in feet, of the embankment as measured from the upstream toe of the embankment.

(11) The side slopes of the settled embankment must not be steeper than 3h:1v upstream and 2h:1v downstream, unless otherwise approved by the department.

(12) After soil is salvaged from the embankment foundation area pursuant to ARM 17.24.701 through 17.24.703, all other organic material must be removed and all surfaces sloped to no steeper than 1v:1h.

(13) Where an embankment is to be placed on side slopes exceeding 1v:5h ( $11.3^\circ$ ), the existing ground must be scarified, stepped, or, if in bedrock, keyed in a manner which increases the stability of the fill.

(14) Embankment material must not contain organic matter, wet or frozen materials, coaly or carbonaceous materials, or any other material considered unsuitable by the department for use in embankment construction.

(15)(a) The placing and spreading of embankment material must be started at the lowest point of the foundation. The embankment must be brought up in horizontal layers of such thickness as is required to facilitate compaction and meet the design requirements of this rule. A lift must not be placed on the previous layer until the density as specified in the design approved by the department has been achieved throughout the previous layer.

(b) In selecting the method to be used for placing embankment material, consideration must be given in the design to such factors as the foundation, geological structure, soils, static water level, high water level, type of construction, and equipment to be used.

(c) AASHTO or other comparable specifications approved by the department for the determination of the maximum dry density for granular materials must be applied during construction.

(16) Embankments must have a minimum seismic safety factor of 1.2 and a minimum static safety factor of 1.5 under any condition of loading likely to occur, or such higher factor as the department determines to be reasonably necessary for safety, protection of property, or preventing environmental harm.

(17) All pond embankments must be designed and constructed in accordance with sound engineering and construction practices and certified by a licensed professional engineer experienced in the design of such structures.

(18) Temporary erosion-control measures must be utilized as necessary during construction to control sedimentation and minimize erosion until long-term erosion-control measures can be established.

(19) The entire embankment, including the surrounding areas disturbed by construction, must be stabilized with a vegetative cover or other means immediately after the embankment is completed in order to protect against erosion and sudden drawdown. The active upstream face of the embankment where water will be impounded may be riprapped or otherwise stabilized. Areas in which the vegetation is not successful or where rills and gullies develop must be repaired and revegetated in accordance with ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.721, 17.24.723 through 17.24.726, 17.24.728, and 17.24.730 through 17.24.733.

(20) If a sedimentation pond meets any of the criteria of 30 CFR 77.216(a), the following additional requirements must be met:

(a) an appropriate combination of principal and emergency spillways that will discharge safely the runoff resulting from a 100-year, 24-hour precipitation event, or a larger event specified by the department, assuming the impoundment is at full pool for spillway design, must be provided;

(b) appropriate barriers must be provided to control seepage along conduits that extend through the embankment; and

(c) the criteria of the mine safety and health administration as published in 30 CFR 77.216 and ARM 17.24.315 must be met.

(21) If a sedimentation pond meets the Class B or C criteria for dams in TR-60, it must comply with the following additional requirements:

(a) for freeboard, the freeboard hydrograph criteria listed in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60; and

(b) for safely discharging the design precipitation event, the emergency spillway hydrograph criteria in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60, or greater event as specified by the department.

(22)(a) All ponds with embankments must be designed and inspected regularly during construction under the supervision of, and certified after construction by, a qualified licensed professional engineer experienced in the construction of impoundments. After construction, inspections and certifications must be made and reports filed with the department, pursuant to ARM 17.24.642(4). Inspection and certification reports must be submitted until the embankments are removed.

(b) For ponds designed and constructed pursuant to ARM 17.24.639(7)(b) or (c), the certification must also indicate that safe dewatering of the pond will occur within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices.

(23) All ponds with embankments must be examined for structural weakness, erosion, and other hazardous conditions, and reports and modifications must be made to the department, in accordance with 30 CFR 77.216-3. With the approval of the department, dams not meeting the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in TR-60 must be examined at least four times per year. If an examination or inspection discloses that a potential hazard exists, the person who examined the impoundment must promptly inform the department of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the department must be notified immediately. The department shall then notify the appropriate agencies that other emergency procedures are required to protect the public.

(24)(a) Sedimentation ponds and other treatment facilities must not be removed:

(i) sooner than two years after the last augmented seeding within the drainage, unless otherwise approved by the department in compliance with ARM 17.24.633;

(ii) until the drainage entering the pond has met the applicable state and federal water quality requirements for the receiving stream; and

(iii) until evidence is provided that demonstrates that the drainage basin has stabilized to the extent that it was in the undisturbed state.

(25) When the sedimentation pond is removed, the affected land must be regraded and revegetated in accordance with ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.718, 17.24.721, 17.24.723 through 17.24.726, and 17.24.731. If the department approves retention, the sedimentation pond must meet all the requirements for permanent impoundments of ARM 17.24.642 and 17.24.650.

(26)(a) Other treatment facilities must be designed to treat the 10-year, 24-hour precipitation event unless a lesser design event is approved by the department based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of ARM 17.24.633 will be met.

(b) Other treatment facilities must be designed in accordance with the applicable requirements of (1) through (21).

(27) Runoff from areas above a structure impounding coal waste or runoff from the surface of the facility and that may cause instability or erosion of the impounding structure must be diverted into stabilized diversion channels designed to meet the requirements of ARM 17.24.635 and 17.24.637 and designed to safely pass the runoff from a 100-year, six-hour design-precipitation event.

(28)(a) Excavations which are sediment control structures during or after the mining operation must have perimeter slopes that are stable. Where surface runoff enters the impoundment area, the sideslope must be protected against erosion. An excavated sediment pond requires no spillway and must be able to contain the 10-year, 24-hour precipitation event, and conform with (1), (2), (4), (6), (18), (22)(a), (24) and (27).

(b) These excavations which are sediment control structures must be certified initially by a qualified licensed professional engineer. The department shall perform subsequent inspections. If any modifications are necessary, the department shall promptly notify the operator. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1990 MAR p. 936, Eff. 5/18/90; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 1999 MAR p. 2768, Eff. 12/3/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.640 DISCHARGE STRUCTURES (1) Discharge from sedimentation ponds, impoundments, and diversions must be controlled by vegetation, energy dissipators, riprap channels, and other measures, where necessary, to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures must be designed according to standard engineering-design procedures and be certified by a qualified, registered, professional engineer as meeting the performance standards of this subchapter and any design criteria specified by the department. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.641 ACID- AND TOXIC-FORMING SPOILS Drainage from acid- and toxic-forming spoil into ground and surface water must be avoided by:

(1) identifying, burying, and treating whenever necessary, spoil that, in the judgment of the department, may be detrimental to vegetation or may adversely affect water quality if not treated or buried;

(2) preventing water from coming into contact with acid-forming or toxic-forming spoil in accordance with ARM 17.24.501(3), 17.24.504, 17.24.507, and other measures required by the department; and

(3) burying or otherwise treating all acid-forming or toxic-forming spoil within 30 days after it is first exposed on the mine site, or within a lesser period required by the department. Temporary storage of the spoil may be approved by the department upon a finding that burial or treatment within 30 days is not feasible and will not result in any material risk of water pollution or other environmental damage. Storage must be limited to the period until burial or treatment first becomes feasible. Acid-forming or toxic-forming spoil to be stored must be placed on impermeable material and protected from erosion and contact with surface water. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.642 PERMANENT IMPOUNDMENTS AND FLOOD CONTROL IMPOUNDMENTS (1) Permanent impoundments are prohibited unless constructed in accordance with ARM 17.24.504 and 17.24.639, and have open-channel spillways that will safely discharge runoff resulting from a 100-year, 24-hour precipitation event, assuming the impoundment is at full pool for spillway design, or larger event specified by the department. The department may approve a permanent impoundment upon the basis of a demonstration that:

(a) the quality of the impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet applicable state and federal water quality standards;

(b) discharge of water from the impoundment will not degrade the quality of receiving waters to less than the water quality standards established pursuant to applicable state and federal laws;

(c) the level of water will be sufficiently stable to support the intended use;

(d) adequate safety and access to the impounded water will be provided for proposed water users;



(e) water impoundments will not result in the diminution of the quality or quantity of water used by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses;

(f) the design, construction, and maintenance of structures will achieve the minimum design requirements applicable to structures constructed and maintained under the Watershed Protection and Flood Prevention Act. PL 83-566 (16 USC 1006). Requirements for impoundments that meet the size or other criteria of the mine safety and health administration, 30 CFR 77.216(a) are contained in U.S. soil conservation service's Technical Release No. 60 (210-VI-TR60, October 1985, as revised through January 1991), "Earth Dams and Reservoirs," (TR-60). Requirements for impoundments that do not meet the size or other criteria contained in 30 CFR 77.216(a) are contained in U.S. soil conservation service's Practice Standard 378, "Ponds," October 1978. The technical release and practice standard are hereby incorporated by reference. Technical Release No. 60 and Practice Standard 378 are on file and available for inspection at the Helena office of the Department of Environmental Quality, 1520 E. 6th Ave., Helena, MT 59601; and

(g) the impoundment will be suitable for the approved postmining land use.

(2) All permanent impoundments must meet the design and performance requirements of ARM 17.24.639.

(3) All permanent impoundments must be routinely maintained during the mining operations. Ditches and spillways must be cleaned.

(4) All permanent impoundments must be inspected and certified to the department by a qualified licensed professional engineer, immediately after construction and annually thereafter, as having been constructed and maintained to comply with the requirements of this section. Inspection reports must be submitted until phase IV bond release. Certification reports must be submitted to the department annually, either concurrently with the annual report (ARM 17.24.1129) or with the second semi-annual hydrology report (ARM 17.24.645(8) and 17.24.646(2)). The operator shall retain a copy of each report at or near the minesite. Certification reports must include statements on:

(a) existing and required monitoring procedures and instrumentation;

(b) the design depth and elevation of any impoundment waters at the time of the initial certification report or the average and maximum depths and elevations of any impounded waters over the past year for the annual certification reports;

(c) existing storage capacity of the impoundment; and  
(d) any other aspects of the impoundment affecting stability.

(5)(a) Flood control impoundments are located upstream of disturbance areas for the purpose of preventing or controlling flooding or discharge and are not designed for sediment control or to be permanent.

(b) Flood control impoundments with embankments must be constructed in accordance with (1)(f) and ARM 17.24.639(7) through (21), and be inspected, maintained and certified according to (3), (4)(a), (4)(d), and (6) and ARM 17.24.639(22) and (23).

(c) Excavated flood control impoundments:

(i) must be in compliance with ARM 17.24.639(18);

(ii) must have perimeter slopes that are stable; and

(iii) must be protected against erosion where surface runoff enters the impoundment area.

(d) An initial pond certification report and inspections must be made for excavated flood control impoundments in accordance with ARM 17.24.639(28)(b). If the volume of the flood control impoundment is used in determination of required volume for a downstream pond, annual certification reports are required in accordance with (4)(a), (4)(c), and (4)(d).

(e) Prior to construction, flood control impoundments must be approved by the department.

(6) Permanent impoundments and flood control impoundments with embankments meeting the size or other criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in TR-60 must be routinely inspected by a qualified licensed professional engineer or by someone under the supervision of a qualified licensed professional engineer, in accordance with 30 CFR 77.216-3.

(7) Plans for any enlargement, reduction in size, reconstruction, or other modifications of permanent impoundments and flood control impoundments must be submitted to the department and must comply with the requirements of this subchapter. Except where a modification is required to eliminate an emergency condition constituting a hazard to public health, safety, or the environment, the modification must not be initiated until the department approves the plans. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.643 GROUND WATER PROTECTION (1) Mining must be conducted to control the effects of drainage from pits, cuts, and other mining activities and disturbances. The permittee shall prevent or control discharge of acid, toxic, or otherwise harmful mine drainage waters into ground water flow systems so that adverse impacts on ground water flow systems and on approved postmining land uses are prevented.

(2) Backfilled materials must be placed to minimize adverse effects on ground water flow and quality, to minimize off-site effects, and to support the approved postmining land use. The permittee is responsible for performing monitoring according to ARM 17.24.645 to ensure that operations conform to this requirement. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.644 PROTECTION OF GROUND WATER RECHARGE (1) The disturbed area must be reclaimed to restore the approximate premining recharge capacity through restoration of the capability of the reclaimed areas as a whole to transmit water to the ground water system. The recharge capacity must be restored to support the approved postmining land use, minimize disturbances to the prevailing hydrologic balance in the mine plan and adjacent areas, and provide a rate of recharge that approximates the premining recharge rate. The permittee shall monitor according to ARM 17.24.645 to ensure operations conform to this requirement.

(2) The permittee shall collect data and conduct studies as requested by the department to determine whether the recharge capacity of the mined lands can be restored to the approximate premining recharge capacity. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.645 GROUND WATER MONITORING (1) Ground water levels, subsurface flow and storage characteristics, and the quality of ground water must be monitored based on information gathered pursuant to ARM 17.24.304 and the monitoring program submitted pursuant to ARM 17.24.314 and in a manner approved by the department to determine the effects of strip or underground mining operations on the recharge capacity of reclaimed lands and on the quantity and quality of water in ground water systems in the permit and adjacent areas. When operations may affect the ground water system, ground water levels and ground water quality must be periodically monitored using wells that can adequately reflect changes in ground water quantity and quality resulting from such operations.

(2) Monitoring must:

(a) include the measurement of the quantity and quality of water in all disturbed or potentially affected geologic strata within and adjacent to the permit area. Affected strata are all those adjacent to or physically disturbed by mining disturbance and any aquifers below the base of the spoils that could receive water from or discharge water to the spoils. Monitoring must be of sufficient frequency and extent to adequately identify changes in ground water quantity and quality resulting from mining operations; and

(b) be adequate to plan for modification of strip or underground mining operations, if necessary, to minimize disturbance of the prevailing hydrologic balance.

(3) The department may require the permittee to expand the ground water monitoring system whenever a significant impact to the hydrologic balance of the permit and adjacent area is likely and the expanded monitoring is needed to adequately monitor the ground water system. As specified and approved by the department, additional observations and analyses, such as infiltration tests and aquifer tests, must be undertaken by the permittee to demonstrate compliance with this rule.

(4) Whenever an applicant demonstrates by the use of the probable hydrologic consequences determination (see ARM 17.24.314) and other available information that a particular water bearing stratum in the proposed permit or adjacent areas does not have a significant role in maintaining the hydrologic balance within the cumulative impact area, the department may waive monitoring of that stratum.

(5) Ground water monitoring must proceed through mining and continue until phase IV bond release. The department may allow modification of the monitoring requirements, except those required by the Montana pollutant discharge elimination system permit, including the parameters covered and sampling frequency, if the operator or the department demonstrates, using the monitoring data obtained under this rule, that:

(a)(i) the operation has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area;

(ii) water quantity and quality are suitable to support approved postmining land uses; and

(iii) the water rights of other users have been protected or replaced;

(b) monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under this rule; or

(c) with regard to monitoring related to an alluvial valley floor, monitoring of the essential hydrologic function of the alluvial valley floor is ensured under the modified program.

(6) Methods of sample collection, preservation and sample analysis must be conducted in accordance with 40 CFR Part 136 titled "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (July 2003) and the department's document titled "Circular WQB-7, Montana Numeric Water Quality Standards", January 2004 edition. Copies of Circular WQB-7 are available at the Department of Environmental Quality, 1520 E. 6th Ave., P.O. Box 200901, Helena, MT 59620-0901. Sampling and analyses must include a quality assurance program acceptable to the department.

(7) Whenever monitoring reveals noncompliance with the permit, the Act, or the rules adopted thereunder, the permittee shall immediately take steps to minimize adverse effects. Those steps include, but are not limited to, accelerated or additional monitoring, abatement, and warning of all persons whose health or safety is in imminent danger. The permittee shall, within five days of discovery of noncompliance, notify the department of noncompliance and remedial measures taken.

(8) Results of ground water monitoring activities must be reported to the department semiannually, and all monitoring data must be maintained on a current basis for inspection at the mine office. Any sample results indicating a permit violation must be reported to the department within five days of receipt of results. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 1999 MAR p. 2768, Eff. 12/3/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.646 SURFACE WATER MONITORING (1) Surface water monitoring must be based on information submitted pursuant to ARM 17.24.304 and must be conducted in accordance with the monitoring program submitted under ARM 17.24.314 and approved by the department. Monitoring must:

(a) be adequate to measure accurately and record water quantity and quality of all discharges from the permit area;

(b) in all cases in which analytical results of the sample collections indicate noncompliance with a permit condition or an applicable standard, result in the operator immediately taking appropriate remedial measures. Within five days of the discovery of the noncompliance, the operator shall notify the department of the noncompliance and of the remedial measures taken and shall comply with (6). These remedial measures include, but are not limited to, accelerated or additional monitoring, abatement, and warning of all persons whose health and safety is in imminent danger. Whenever a violation of a Montana pollutant discharge elimination system (MPDES) permit occurs, the operator shall forward the analytic results concurrently with the written notice of noncompliance;

(2) The operator shall submit semi-annual reports including analytical results from each sample taken during the semester to the department. In addition, all monitoring data must be maintained on a current basis for review at the minesite. Any sample results that indicate a permit violation must be reported immediately to the department. However, whenever the discharge for which water monitoring reports are required is also subject to regulation by a MPDES permit and that permit requires filing of the water monitoring reports within 90 days or less of sample collection, the operator shall submit to the department on the time schedule required by the MPDES permit or within 90 days following sample collection, whichever is earlier, a copy of the completed reporting form filed to meet MPDES permit requirements.

(3) Monitoring must be conducted at appropriate frequencies to measure normal and abnormal variations in concentrations.

(4) After disturbed areas have been regraded and stabilized according to ARM 17.24.501, the operator shall monitor surface water flow and quality. Data from this monitoring must be used to determine whether the quality and quantity of runoff without treatment is consistent with the requirements of this rule to minimize disturbance to the prevailing hydrologic balance, to demonstrate that the drainage

basin has stabilized to its previous, undisturbed state, and to attain the approved postmining land use. These data must also be used by the department to review requests for removal of water quality or flow control systems and for bond release. With department approval, other information or methods, such as models, may be used, in conjunction with monitoring data, for these purposes.

(5) Equipment, structures, and other devices necessary to measure and sample accurately the quality and quantity of surface water discharges from the disturbed area must be properly installed, maintained, and operated and must be removed when no longer required.

(6) Methods of sample collection, preservation and sample analysis must be conducted in accordance with 40 CFR Part 136 titled "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (July 2003) and Part 434 titled "Coal Mining Point Source Category BPT, BAT, BCT Limitations and New Source Performance Standards" (January 2002), and the January 2004 version of the department's document titled "Circular WQB-7, Montana Numeric Water Quality Standards". Copies of 40 CFR Part 136, 40 CFR 434, and Circular WQB-7 are available at the Department of Environmental Quality, 1520 E. 6th Ave., P.O. Box 200901, Helena, MT 59620-0901. Sampling and analyses must include a quality assurance program acceptable to the department.

(7) Surface water monitoring must proceed through mining and continue until phase IV bond release. The department may allow modification of the monitoring under the same criteria as are contained in ARM 17.24.645(5). (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04.)

17.24.647 TRANSFER OF WELLS (1) With prior approval of the department, the permittee may allow the surface owner to use a prospecting well or a monitoring well as a water well. To obtain departmental approval, the surface owner must submit a written request for transfer and evidence that the well has been completed in compliance with standards established by the board of water well contractors. The permittee remains responsible for proper management of the well and site until final bond release. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-223, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

17.24.648 WATER RIGHTS AND REPLACEMENT (1) The permittee shall replace the water supply of any owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial, or other legitimate use from surface or underground source if such supply has been affected by contamination, diminution, or interruption proximately resulting from strip or underground mine operation by the permittee. (History: 82-4-204, 82-4-205, MCA; IMP, 82-4-253, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.649 DISCHARGE OF WATER INTO UNDERGROUND MINES

(1) Surface and ground waters must not be discharged, diverted, or allowed to infiltrate into existing underground mine workings. (History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.650 POSTMINING REHABILITATION OF SEDIMENTATION PONDS, DIVERSIONS, IMPOUNDMENTS, AND TREATMENT FACILITIES

(1) Before abandoning the permit area, the operator shall renovate all permanent sedimentation ponds, diversions, impoundments, and treatment facilities to meet criteria specified in the detailed design plan for the permanent structures and impoundments.

(2) All temporary sedimentation ponds, diversions, impoundments and treatment facilities must be regraded to the approximate original contour and reclaimed prior to abandonment of the permit area. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.651 STREAM CHANNEL DISTURBANCES AND BUFFER ZONES

(1) No land within 100 feet of a perennial stream or intermittent stream or a stream reach with a biological community determined according to (3) may be disturbed by strip or underground mining operations, nor may the stream itself be disturbed, except as approved in accordance with ARM 17.24.634 through 17.24.637 and 17.24.751, upon finding by the department that:

(a) the original stream function will be restored in accordance with ARM 17.24.634 and 17.24.751; and

(b) during and after the mining, the water quantity and quality and other environmental resources of the stream and the lands within 100 feet of the stream will not be adversely affected.



(2) Any area not to be disturbed must be designated a buffer zone and marked as specified in ARM 17.24.524.

(3) A stream with a biological community is determined by the existence in the stream of an assemblage of two or more species of fish, amphibians, arthropods or mollusk that are:

(a) adapted to flowing water for all or part of their life cycle;

(b) dependent upon a flowing water habitat;

(c) reproducing or can reasonably be expected to reproduce in the water body where they are found; and

(d) these species must be longer than two millimeters at some stage of their life cycle spent in the flowing water habitat. (History: 82-4-204, MCA; IMP, 82-4-231, 82-4-232, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042.)

17.24.652 WELLS AND UNDERGROUND OPENINGS: SAFETY

(1) Each prospecting well, other well, and all other exposed underground openings in the permit area must be temporarily sealed before use and temporarily protected during use by barricades, fences, or other protective devices approved by the department. The permittee shall periodically inspect these devices and maintain them in good operating condition.

(History: 82-4-204, MCA; IMP, 82-4-231, MCA; NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99.)

